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ON THE USE OF MYDRIATICS IN DETERMINING  
ERRORS OF REFRACTION AND THE COR-  
RECTION OF THE WHOLE ERROR SO  
DETERMINED.

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BY HENRY DICKSON BRUNS, M. D., NEW ORLEANS, LA.

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An optician given a dioptric apparatus to determine its focal length for objects infinitely distant, were this apparatus provided with a mechanism by means of which its adjustment might be and is momentarily altered, but which mechanism by the turn of a screw could be thrown out, would show a lack of common sense did he fail to turn the screw and reduce the problem to its simplest terms.

This is the problem with which the oculist is confronted when called upon to restore the ease of normal function to a human eye, unable by reason of a refractive imperfection, to perform without pain the task imposed by an ever more exacting civilization.

The first step in the restoration to comfort of one of these incapable eyes, is to determine the refractive error that causes the images of distant objects regarded by such an eye in a state of rest, to fall either before or behind the position of its

retina. To the accuracy of this determination, the ciliary muscle opposes its incessant efforts, I believe, in the majority of cases eminently successfully. In atropia (and some other similar drugs) we possess a rapid, sure and painless means of suspending the action of the muscle; and yet, strange to say, an examination of our text-books seems to show, that the greater number of practitioners do not as a rule use these drugs in determining errors of refraction. Three classes of cases have to be dealt with (1), hypermetropia and the simple and compound hypermetropic astigmatisms; (2), myopia and the simple and compound myopic astigmatisms, and (3) regular mixed astigmatism, and the text writers differ as to the rules they lay down for the use of mydriatics in these different kinds of errors.

Soelberg Wells (Bull, 1883) only contemplates the use of a mydriatic in cases of hypermetropia and it should "only be applied in those cases in which it is of importance to know precisely the degree of latent H." (p. 643). "In myopia," says Juler (1884), "the employment of a mydriatic is not as a rule necessary, except in the case of young children, or when As. is present.

"In patients under twenty with H. or As., the accommodation should as a rule be paralyzed.

"In those who are slightly older—say 20 to 30—a mydriatic can often be dispensed with, provided, that in the event of the glasses not relieving the symptoms, an opportunity of retesting can be procured.

"After the age of 30 mydriatics are seldom necessary.

"No hard and fast line can, however, be laid down, and much will depend upon circumstances." (p. 405.)

Alt, in his Ophthalmology for the General Practitioner (1884), insists upon the necessity of using atropia in cases of H., but has nothing to say of its use in M.

In the American Edition of Carter's Treatise edited by Green, the former advises the use of atropia in cases of H. only, while the latter urges its use in M. alone.

Noyes writes (p. 60, Diseases of the Eye, Woods Library, 1881):

"Atropia is demanded if the neuralgic pain is great and accommodative spasm severe; also if visual acuity cannot be raised to  $20/xx$ . But if a convex glass is accepted which does not differ much from the ophthalmoscopic finding, and with it  $V=20/xx$ , and if with it Sn. No. 1 is read easily at 12 inches and the larger type at proportionate distances, and if the patient confidently expresses satisfaction in its use, atropia need not be employed. This course will be suitable with H. not more than  $1/16$  and in persons under 30 (not speaking dogmatically) who have a good degree of accommodation. In them it is proper only to correct the manifest H., and they will seldom need at first more than  $1/36$  or  $1/24$ . "We are to be much guided by circumstances, but in doubtful cases the patient should have the benefit of atropia."

Landolt (*Examination of the Eyes*, Burnett, 1879,) only uses atropia in exceptional cases, and thinks he can rely on the ophthalmoscope.

Swanzy (1884) mentions the use of these drugs, but lays down no very clear rules for their employment.

Fenner (*Vision and its Optical Defects*, 1883) does not use a mydriatic. He corrects the Hm. and as time wears on increases the strength of the glasses.

DeWecker (*Ocular Therapeutics*, Forbes, 1879), says: "In practice we do not usually make use of mydriatics, which paralyse the accommodation, in determining refraction."

Giraud Teulon (*The Function of Vision*, Owen, 1880) evidently contemplates the use of a mydriatic.

Schweiger (*Farley*, 1878) limits the use of mydriatics to exceptional cases:

My thesis is, that the use of a mydriatic is absolutely necessary for the accurate determination of the refraction in every patient below the age of fifty or sixty; that in every case it is of the utmost importance "to know precisely the degree of latent H." Both in H. and M., the ciliary muscle retains a notable degree of power long past the age of thirty, and instinct and habit drive it to use this power to lessen in H., and increase in M. the degree of the refractive error we are en-

deavoring to discover. Lack of exactness is the opprobrium of medicine; while the boast of ophthalmology is that the use of the ophthalmoscope and the test-glass has well nigh raised it to an exact science. Yet no one can deny, that in every determination of refraction made without a mydriatic there lurks an element of uncertainty which it was in our power to eliminate, and failure to do so is a voluntary surrender of an exact for an approximative method. Although I have known men who had attained wonderful skill in the determination of refraction with the ophthalmoscope, yet I believe it vain to rely upon this instrument; the unrestrained, ever-varying ciliary muscle vitiates its results as it does those of the test-glass. For though the patient in the dark room *ought* to sit with his accommodation perfectly relaxed, he is almost sure to fix his attention on the object most clearly illuminated by the lamp, the nearest object within his ken. Every hypermetropic oculist must remember, that it was only after long practice he became able to relax his accommodation, and how difficult this is to do, without his correcting glasses, so long as any object remains within the field of vision; and yet this is what we demand of every hypermetropic patient whose refraction we undertake to estimate with the ophthalmoscope.

To these considerations the results of experience and experiment lend their weight. Of 51 cases in which the Hm. was determined, it equalled the Ht. in 11, came within 0.50 D. of it in 9, and within 1 D. in 9 cases; the difference being greater than 1 D. in 22 cases. Of 24 cases the Mm. equalled the Mt. in 2 cases, came within 0.50 D. in 6, and within 1 D. in 3 cases the difference being greater than 1 D. in 13 cases. In cases No. 1, 2, 3, 4, 5, every effort, save the instillation of a mydriatic had been made to discover the true refractive condition, but in vain. Were I at liberty to mention the name of the eminent oculist who declared the symptoms of case No. 1 to be due to hypermetropia, and then after an examination (conducted without the aid of a mydriatic), with test glasses and ophthalmoscope, withdrew this opinion and pronounced the refraction emmetropic, it would, I feel sure, be a guarantee to

every oculist in America that all possible skill in the use of these instruments had been brought to bear, and go far towards convincing them of the justice of my position. Case No. 5 is a striking instance of failure to discover the degree of a myopic error. The patient had been under the care of two distinguished practitioners of our specialty, and had been equipped with no less than four pairs of spectacles, yet none of these represented the error actually present. In all of these specimen cases the sole cause of failure lay in neglecting to employ so simple an expedient as the instillation of a mydriatic. They are most forcible and eloquent arguments.

Many incidental advantages also are derived from the use of mydriatics. Tired eyes are given a period of absolute rest before beginning again their accommodative labors, and during the time the ciliary muscle is slowly recovering its power, whatever glass may have been prescribed is more readily accepted; insufficiency of the recti muscles, due to overstrain wholly or in part passes away (cases No. 7, 8, 11 and 18); intractable blepharitis is put on the high-road to recovery (case No. 1) and recurrent styes (case No. 9) disappear to return no more, under the relief afforded by the wearing of correcting glasses. Without the use of a mydriatic the true nature of cases Nos. 10 and 11 might easily have been overlooked for the symptoms of accommodative spasm were very slight. Indeed I believe that each was in the act of passing over into myopia, a process which Dr. S. D. Risley, of Philadelphia, has proven does take place, and that the employment of the drug led to their certain detection and relief.

The facts then seem to sustain fully the following propositions :

1. Without the use of a mydriatic, it is impossible to determine with indubitable accuracy the total amount of refractive error in cases of H. or M., the action of the ciliary muscle causing the former to appear less, the latter greater than the degree present.

2. The presence of astigmatism complicates the problem the "axis of the astigmatism" can usually be determined with-

out a mydriatic, the amount will be found to vary at each trial, and there is nothing to indicate which is the true result.

3. In regular mixed astigmatism the sources of error in both H. and M. coexist.

4. Hence use of a mydriatic in the case of every patient under 50 or 60 should be "a hard and fast rule" only to be departed from when the circumstances of the patient absolutely forbid his submitting to the inconveniences entailed by the use of the drug: then it should be explained to him that the determination is only approximative, and the glasses prescribed merely a temporary resource.

Now what can be the reason that the greater number of oculists continue, and I have no doubt will for years continue to dispense with the use of mydriatics?

It is true that their employment subjects the patient to great discomfort and some loss of time, and for these reasons many persons will object to the use of these drugs, and the practitioner may fear by insisting upon the necessity for them to drive a possible client into other hands. But apart from the fact that a yielding to these considerations would be, in my opinion, a sadly short sighted policy, I cannot believe that the members of our profession would be moved by them to abandon an exact diagnostic method and take to one that offers but a shifting measure of certainty. No, the cause lies in the prevalent, but I am convinced mistaken, ideas as to the strength of the glass which should be prescribed for the correction of the various anomalies of refraction.

The whole error of refraction revealed by the mydriatic should be corrected.

We know that the emmetropic eye is able to meet all demands upon it without discomfort, for the happy possessors of such eyes are rarely to be found among the visitors to our consultation rooms, and the majority of civilized men on the sunny side of forty are still able to dispense with spectacles. It would seem the most natural thing, therefore, having found an eye ametropic to remove the disability by means of a lens exactly compensating for the refractive error revealed by the mydriatic.

In practice, however, we find, that the eye having recovered from the effects of the drug is no longer able to see perfectly through such a glass. In hypermetropia the glass must be reduced from 1 to 2 D. and the greater number of practitioners hold, apparently, that it is this weaker glass which should be prescribed, the reason assigned being that this amount of positive refraction will be added to the total error found when, as the effect of the mydriatic passes away, the ciliary muscle recovers its normal tone or tension. I believe this "ciliary tension" to which our confrères have pinned their faith, to be entirely a phantom of the imagination. In the first place the *power* of tension ascribed to the muscle is manifestly absurd. According to Landolt, the total accommodative power possessed by a child of ten is represented by a glass of +14 D., and if we subtract from the glass representing the Ht. in any case 1 or 2 D. we are committing ourselves to the supposition, that the tone or tension of this microscopical muscle is equal to from  $\frac{1}{14}$  to  $\frac{1}{7}$  of its total power. No one would contend suppose that a biceps capable of lifting a load of 14 pounds, would, if 1 pound were placed in the hand and all the opposing muscles cut, jerk that weight to the shoulder by the force of normal muscular tension alone. Indeed the doctrine of "muscle tonus" has been utterly abandoned by physiologists (Landois and Sterling; Second Edition, p. 667.) But aside from all speculation there are two facts which positively demonstrate the non-existence of this ciliary tone. We occasionally see patients whose refraction, even when the muscle is entirely paralyzed by the action of a mydriatic, is perfectly emmetropic, vision being  $\frac{20}{20}$  or  $\frac{20}{15}$ . (Cases 7, 12); and these same patients remain emmetropic, when the ciliary muscle untrammelled by mydriatic influence, is free to exert upon the refraction, the effect of its tension. Did this in truth equal a glass of +1, or even of +0.50 D., the eye which had proved emmetropic under a mydriatic would have become myopic and a glass of -1 or -0.50 D. would be required to raise vision to the normal. For if a glass of +0.50 D. be held before a perfectly normal eye

(uninfluenced by a mydriatic) it is no longer able to distinguish even  $20/30$ , as I know from my own experience.

And this brings me to the second fact. I do not mean to assert in what I have just said, that I am blessed with the possession of emmetropic eyes; but I have worn for years (at first constantly and now for all near work) glasses which correct my total hypermetropia as determined after repeated instillations of atropia, and while these at first blurred my distant vision greatly, I can now read through them  $20/12$  quite clearly: they render me emmetropic. Did the ciliary muscle exert a tension force of  $1+0.50$  D. this would be impossible. The addition of the weaker of such lenses to my glasses at once reduces my vision to  $20/50$ . I have seen scores of persons who presented the same phenomenon: (Cases Nos. 13, 14, 15, 16, 17, 4, 6, 10).

In myopia the conditions are the opposite of those we have been considering; glasses are not as a rule prescribed for the relief of asthenopia and pain, but to procure good distant vision, and to check the progress of the malady, the latter being the most important indication. Swanzy consistently teaches, that to the glass which corrects the total myopia— $0.50$  D. should be added to compensate for the ciliary tone, but we believe we have said enough to show that this is an imaginary quantity. The generality of practitioners, however, advise the reduction of the glass determined under a mydriatic by 1 or more D., though the glass so determined is itself usually weaker by this amount than the glass found when no mydriatic is used.

Now there are two main theories concerning the tendency to the progressive increase of myopia. Both presupposing an inherent weakness of the ocular coats, the first regards the exciting cause as intra-ocular, the constant pull of the ciliary muscle. Founding themselves upon the observations of Iwanoff and Rollet, some have contended, that the great development of the longitudinal fibres of the ciliary muscle found in myopic eyes, is due to the incessant efforts made while regarding distant objects to draw forward the choroid and retina, and thus

lessen in some degree the myopia. If this be true we can hardly make a more fatal mistake than prescribing a glass too weak to correct the total myopia, for by so doing we have active during all the time that far objects are regarded a certain portion of the exciting cause. Others who hold to this theory, believe that the strenuous accommodative efforts necessitated by the constant approximation of small objects to the myopic eye is the injurious factor. Of course less strain is put upon the accommodation in viewing a small object at a moderate distance, let us say 16 inches, through a weak glass than through one which corrects the total myopia ; but a weak glass does not force the myope to hold small objects at this moderate distance, on the contrary he is very apt to yield to habit and the desire for larger images and carry the objects to the point at which he was wont to regard them without glasses, and if this happens the glass renders necessary an accommodative effort greater than before. On the other hand the ciliary muscle not being very highly developed in myopes, a glass which corrects the total error will usually compel the holding of the object at a reasonable distance, under penalty of blurred vision and more or less discomfort and pain.

The second theory, and the one which to-day seems to be gathering about it the greater number of adherents, holds that the pressure of the recti muscles upon the globes in all movements of convergence is the exciting cause of myopia and its increase. If we accept this view, then, as has been lately pointed out by Foerster, *the object of a glass is to enable, to force the myope to keep all near work at a reasonable distance, and a strong glass, one which corrects the total error, best fulfils this indication for the reason just given above.* Granting the soundness of this reasoning, whichever theory we adopt, the glass which militates most strongly against the causes of increase is that which fully corrects the total myopia ; for the two factors accommodation and convergence act and react unceasingly, and the glass which does away with all accommodative effort in distant vision must give to the internal recti long periods of complete rest, while by compelling the holding of

near work at a reasonable distance, it relieves at one and the same time the recti and the ciliary muscles. And these conclusions seem to be borne out by the results of practice, case No. 18 affording a conspicuous example.

Beyond a doubt that myope is most fortunate whose defect is discovered early in life, accurately determined under a mydriatic, and fully corrected by the glass so found. I know many whose fully correcting glasses are as constantly worn as their clothes, who are emmetropic to all intents and purposes, being utterly unconscious of their eyes and enjoying perfect or even extraordinary vision at all distances. And these happy results may be obtained in persons past the age of thirty, though they never before used glasses, but previous use of even a weak and imperfect glass makes them easier of attainment.

The difficulties with which we have to contend in prescribing the full correction of hypermetropic and myopic defects are inveterate habit, and a lack of perseverance on the part of our patients, and perhaps ourselves. The hypermetrope has been used to accommodate constantly even when regarding the most distant objects, and when first provided with correcting glasses he continues to do so, rendering himself practically and very unpleasantly, nearsighted. Thus, though he finds the glasses agreeable and satisfactory for near work, they are almost intolerable for street wear, and it requires great tact and trouble to persuade our patient not to abandon them before the end of the six weeks or three months required to learn to relax his accommodation in looking at distant objects. Happily in a large number of cases of hypermetropia the use of glasses for near work is all that is necessary.

In myopia the habits of seeing very indistinctly even moderately distant objects, and of approaching all small objects very near to the eye and so enjoying large images, have to be overcome. The myope upon first putting on a pair of glasses which correct his total myopia, experiences a very unpleasant sense of dazzling and strain; the relative positions of objects seem changed, going up and down stairs and stepping across

gutters, etc., are especially difficult; he sees too well, the eyes are required to triangulate exactly and they do not know how. In near work matters are still worse; at first these strong glasses soon bring on accommodative asthenopia, and reading which could be formerly indulged in to an unlimited extent, has now to be restricted to spells of fifteen or twenty minutes. Yet all these difficulties can be overcome, and once overcome I believe our patient is placed in a far better position than if he had been made the victim of multitudinous pairs of spectacles (cases 5 and 18); for by a simple mechanism he is rendered emmetropic, and having developed his ciliary muscle at an expense of time and trouble, small in comparison to that devoted by many to the development of a biceps entirely ornamental under the present constitution of society, he is not only able to enjoy all the comforts of that happy state, but to guard against the increase of a serious evil.

Convinced of the principles I have contended for in this paper, it becomes our duty to insist upon the necessity of using a mydriatic in every case of refractive error in a person under fifty, and to spare no pains to persuade our patients to adopt the use of a glass correcting the total error thus determined.

The first rule, I believe, admits of no exception, for as I have said, without a mydriatic an element of doubt must lurk in our results, and an intelligent optician will achieve, in most cases all that we can accomplish. It is in vain save, in exceptional instances, to hope for an opportunity of re-examination, *if the mydriatic has not been used*, for few patients who have become possessors of an unsatisfactory pair of glasses at a cost of but little time and inconvenience, will return to the same practitioner in the hope of receiving a better.

But once the formula found under the mydriatic is registered in our book, we are masters of the situation. If it becomes necessary, we can modify in a reasonable and definite manner the glass which has proved unsatisfactory: we have a fixed quantity to work from. The patient too, who has undergone all the discomfort of an examination under a mydriatic, is not apt lightly to abandon the result; he will return for a slight

modification of his glass which holds out hopes of increased comfort, and which, it has been explained, can be made with but little loss of time and at no inconvenience.

But the second rule cannot be laid down "hard and fast". There are some hypermetropes, especially the victims of a high degree, who can never learn to relax the accommodation sufficiently to wear with comfort fully correcting glasses for distant vision, and certain myopes, more particularly those who begin the use of glasses late in life, must be provided with a weaker glass for near work; occasionally even they are unable to use for distant vision a fully correcting glass, and we are forced to reduce its strength to a comfort-giving degree.

I had hoped to extend this paper to show that the slight forms of astigmatism, one quarter of a dioptric, often cause as much annoyance as do the higher grades, and, that these equally demand correction by cylinders, but upon looking over my case book I found, that I could not bring forward enough evidence to give any strength to the proposition. This, however, is my conviction, and in all ametropes who have much near work to do, it is my habit to determine and correct these slight degrees of astigmatism as exactly as possible. The error in my own eye is  $+0.50$  s  $\cap +0.50$  c ax.  $90^\circ$ , and the presence or absence of the cylinder makes a great difference in the comfort with which I read; with the cylinder print appears much blacker and clearer than without.

Finally, a settlement of these questions is devoutly to be wished for, and a full and free discussion of them should go far toward that end. Medicine can never be an exact science; even into such a question as this, individuality, the expression of the immutable law of variation, enters, and at the last moment gives a new and unexpected result to our calculations; but by the collection and analysis of a vast number of cases, it should be possible to establish working rules, to which in certain cases a man of common sense would be able to make exceptions. Thus it would be brought within the power of an ordinary intelligence, quickly, safely and certainly to remove what is to-day a great and ever increasing barrier to the hap-

piness and even the success of thousands in the stern struggle for existence.

#### ILLUSTRATIVE CASES ON THE USE OF MYDRIATICS IN DETERMINING REFRACTION, ETC.

**CASE I.**—March 31, 1887. Miss—, æt. about 20, has for several years suffered at times from blepharitis and symptoms of accommodative asthenopia.

About two years ago she consulted one of New York's most distinguished oculists. He told her at once, that she was probably hypermetropic, but after a careful examination—without a mydriatic—with the test glasses and the ophthalmoscope, said he had been mistaken. I instilled an eight grains to the ounce solution of atropia, and found with the test glasses,  $+1. s \bigcirc +0.25 c$  ax.  $90^\circ$  D., each eye. The use of these glasses for all near work together with a little of Pagenstecher's ointment on the edges of the lids soon effected a permanent cure of the blepharitis, and she can read as long as she pleases without symptoms of asthenopia.

**CASE II.**—February 21, 1887. A young clerk, for whom an excellent oculist had prescribed  $+1/4 s$ . Notwithstanding that he wore these he suffered greatly with all the symptoms of accommodative asthenopia. Examination under atropia with the test glasses revealed  $+1.50 s \bigcirc +0.50 c$  ax.  $90^\circ$  D. each eye.

**CASE III.**—October 5, 1883. A student of law, æt. 25, consulted me in October, 1883. For more than a year his eyes had been sensitive to light, and painful, and a cloud seems to come between him and the book when he is reading. A practitioner of reputation whom he consulted gave him a pair of  $+1/4 s$ , and these not affording relief, kept his eyes under the influence of atropia, giving him a pair of  $+1/10 s$  for near work—result an attack of intense neuralgia. Then consulted a distinguished specialist, who said that the retinæ were congested, and prescribed  $+1/60 s$  for near work and an "eye-wash". After some use the eyes again became troublesome, and the

same gentleman recommended six months rest, pilocarpin and pills of strychnia, quinine and iron. The patient was unable to follow the advice as far as taking the rest. Eight months later he consulted me complaining of the old symptoms, which were seriously interfering with his studies. His conjunctivæ were congested and  $1\text{Im.} = 0.75\text{ D.}$  Examination after repeated instillations of atropia, revealed:  $R. +0.50\text{ s}; L. +0.50\text{ s} \bigcirc +0.25\text{ c ax. }90^\circ$ : with these he was enabled to continue his studies. He has since become a busy lawyer. I heard from him Sept. 1886; he uses his glasses for all near work and his eyes never give him any trouble.

CASE IV.—Dec. 27, 1884. X, aet. 24, was educated as a lawyer, but is now teaching school, as his eyes do not permit of his pursuing his former profession. His general health is excellent, but about four years ago he studied much by artificial light and his eyes became troublesome and have been so ever since. About a year ago he began active practice, when his eyes broke down entirely. He consulted a prominent southern oculist, who, without using a mydriatic, prescribed compound glasses. These never gave the slightest relief. Under atropia the error was found to be  $+0.50\text{s} \bigcirc +1\text{c ax }90^\circ\text{ D.}$  each eye. These afforded marked but not entire relief, and subsequent examination discovered an insufficiency of each internal rectus of  $1^\circ$ . He wears the lenses combined with the prisms constantly, and his eyes are perfectly comfortable. Now (1888) the prisms require some change, V. (with glasses)  $= \frac{20}{20}$  each eye, but with a pair of  $+1\text{ s D.}$  over these glasses V. is reduced to  $\frac{20}{70}$ .

CASE V.—Feb. 1887. Miss —, aet. about 18, general health excellent. Her eyes become red and painful if they are used for any length of time. She has had glasses prescribed by two well-known oculists, the last of whom gave her a pair for distance, a pair for piano playing and a pair for reading. The distance glasses were  $R. -4.50\text{s} \bigcirc 1.25\text{c ax }15^\circ; L. -5\text{s} \bigcirc -0.75\text{ c ax }90^\circ\text{ D.}$  There is no insufficiency of the recti manifest at 20 feet. By Graefe's test at 14 inches she requires a prism of  $5^\circ$ , base in. She is kept under atropia four days; now there is no insufficiency with Graefe's test, and the refraction is, R—7s

$\text{--1c ax } 15^\circ$  (V.  $=^{20/20}$  a few letters); L.  $-6s \text{--2c ax } 15^\circ$  (V.  $=^{20/20}$ ). After a prolonged use of atropia, the eyes are allowed to come from under its influence when an insufficiency of each internal rectus of  $2^\circ$  is found. The fully correcting lenses combined with these prisms, bases in, prove after a few days wear very satisfactory for distant vision and for playing the piano, but she can only read for a few minutes at a time. This fall (1887) she was still unable to read for more than a few minutes at a time with these glasses.

CASE VI.—Jan. 22, 1886. Merchant, æt. about 28, general health excellent. Complains of the symptoms of accommodative asthenopia. V. R.  $=^{20/15}$ ; L.  $=^{20/12}$ . Reads  $^{20/20}$  through  $+1s$  D. He tries a pair of  $+1s$  D. for reading for two weeks, and the glass for the left eye seems to suit, but not that for the right. Under atropia the error is found to be, R.  $+0.50s \text{--} 0.50c \text{ ax } 90^\circ$ ; L.  $+1s$  D. V. with these is barely  $^{20/20}$  each eye. In the street vision seems "misty." At the end of six months V. (with glasses) R. and L.  $=^{20/12}$  well,  $^{20/10}$  a few letters.

CASE VII.—Miss —, æt. 45, general health excellent. Has not been able to use her eyes for near work, especially by artificial light, for some time with any comfort. She has never worn glasses. V. R. and L.  $=^{20/20}$  easily. There is no insufficiency of any muscle at any distance with any test, but she can only overcome a prism of  $5^\circ$  with either internal rectus, and a prism of  $3^\circ$  with either external rectus at 20 feet. No trouble with Graefe's test at 14 inches. A strong solution of atropia is instilled daily for one month, but still V. R. and L.  $=^{20/20}$ . At 20 feet each eye overcomes prism of  $10^\circ$  base out and a prism of  $4^\circ$  base in. The same solution is used daily for about a month longer when the eyes are allowed to regain their natural condition. V.  $=^{20/20}$ , and at 20' each eye overcomes a prism of  $20^\circ$  base out. Suitable glasses for near work render the patient comfortable.

CASE VIII.—Miss —, æt. 13. V. R.  $=^{20/20}$ ; L.  $=^{20/20}$ , not quite so well. At 20 feet she requires a prism  $2^\circ$  base in before L.E., and the same prism at 14 to 5 inches. Pencil point carried to within 5 inches is seen double and left eye deviates

outwards, but either eye, if covered deviates. Patient is kept under atropia three days when V. R. =  $^{20}/_{50}$  + 1s =  $^{20}/_{20}$ ; L. =  $^{20}/_{40}$  + 1s =  $^{20}/_{20}$ , scarcely any insufficiency. Order these glasses de-centred so as to act as weak prisms bases in. Two months later, patient is asthenopic again. Now requires a prism of  $4^{\circ}$  before one or the other eye at all distances. A strong solution of atropia is instilled three times daily for a month, when a prism of  $2^{\circ}$  is required before either (one or the other) eye for all distances. These with the lenses render the patient perfectly comfortable.

CASE IX.—May 12, 1887. Miss —, æt. about 24, pale and thin with a family history of phthisis. Has always been subject to styes and blepharitis. Lately she has had 10 or 15 large and painful styes in quick succession, and has now another coming on the left lower eye-lid. As she has Hm. = 0.50 s, and symptoms of accommodative asthenopia, a strong solution of atropia is instilled on four successive days. The stye, as I had felt warranted in promising, never "came to a head" but disappeared, causing little or no pain. There was no other treatment.

CASE X.—March 8, 1887. Mr. —, æt. 24, book-keeper, robust health. Several members of his family are near-sighted. His eyes are sensitive to light and uncomfortable when he is doing near work, especially by artificial light. V. R. and L. =  $^{20}/_{30}$  poorly. Manifest M. = 0.50 s. The disc and retina much congested. Solution of atropia instilled three times daily for 6 days, when refraction found to be +0.50 s — +0.50 c ax  $90^{\circ}$  each eye. With glasses V. =  $^{20}/_{20}$  each eye. He wears glasses constantly and has no further trouble with his eyes.

CASE XI.—Jan. 1887. Miss —, æt. 15, school girl, beautiful, thin, delicate skin and long eyelashes. A slight tendency to blepharitis. The conjunctivæ are a little congested. Eyes water and smart when she uses them long for near work, especially by artificial light. At 14 inches there is an insufficiency of  $2^{\circ}$  of each internal rectus. V. R. and L. one or two letters of  $^{20}/_{20}$  — 0.50 s improves. After two instillations of atropia V. =  $^{20}/_{20}$ , one or two letters; with —0.25 c ax  $180^{\circ}$  =  $^{20}/_{20}$  well; L. V. =  $^{20}/_{30}$ .

—0.50 c ax 180° =<sup>20</sup>/<sub>20</sub> well. Eyes kept under influence of atropia for two weeks, when V. R. and L. =<sup>20</sup>/<sub>15</sub> some letters; insufficiency of internal recti has disappeared. She has no further trouble; June 1888.

CASE XII.—Feb. 4, 1887. Miss —, aet. 18. Consults me on account of a divergent squint. V. =<sup>20</sup>/<sub>20</sub> well; <sup>20</sup>/<sub>15</sub> one or two letters; no Hm. After using a strong solution of atropia morning and night for four days, V. =<sup>20</sup>/<sub>20</sub> well each eye. With +0.50 c ax 90° V. =<sup>20</sup>/<sub>15</sub> fluently each eye.

CASE XIII.—April 14, 1884. A physician, aet. 33, also is troubled by muscæ and accommodative asthenopia. After the use of atropia the refraction was +0.75s  $\bigcirc$  +0.50 c ax 90° each eye. After a week's use V. with the glasses =<sup>20</sup>/<sub>20</sub>, and he used them with comfort to the day of his death, Feb. 12, 1887.

CASE XIV.—April 14, 1885. School boy, aet. 14, suffering from accommodative and muscular asthenopia. Hm. = 1D. Refraction under atropia = +1.50 s. Requires prisms of 1 $\frac{1}{2}$ ° bases in for all distances. Two years later, having become a clerk his eyes grew troublesome, and I advised the constant use of the glass which he had hitherto used for near work only. After a week or so eyes were perfectly comfortable and V. =<sup>20</sup>/<sub>20</sub> each eye.

CASE XV.—Feb. 23, 1884. A collegian, aet. 17, whose eyes broke down about a year ago. V. at that time =<sup>20</sup>/<sub>20</sub> some letters. Examination under atropia gave the formula +1s  $\bigcirc$  0.50 c ax 90°  $\bigcirc$  prism 1 $\frac{1}{2}$ ° base in, each eye. A year after the eyes again became troublesome, and I ordered the constant use of the glasses. After a short struggle, V. (with glass) =<sup>20</sup>/<sub>20</sub> well, each eye.

CASE XVI.—Lawyer, aet. about 32. Eyes irritable after reading a while, especially by artificial light. V. =<sup>20</sup>/<sub>30</sub> poorly, each eye. Hm. = 1 D. Error determined after free use of atropia, +0.50 s.  $\bigcirc$  +1 c. ax. 90°. After wearing two or three weeks V. (with glasses) =<sup>20</sup>/<sub>12</sub> some letters.

CASE XVII.—Sept. 15, 1885. Collector, aet. about 25. Accommodative asthenopia and divergent squint of left eye. Hm. = 1 D. Under atropia refraction 0.75 s. each eye. After a year's use V. (with glass) =<sup>20</sup>/<sub>20</sub> well, each eye.

CASE XVIII.—Feb. 4, 1887. Mrs.—, æt. about 24. Her mother is very myopic. R. V. =  $\frac{20}{200}$ , L.  $\frac{10}{200}$ . She has light hair and eyes and a very languid manner. The eyes appear normal save a slight divergent squint in the left. The ophthalmoscope reveals nothing that I can call abnormal, but the whole choroidal circulation is much too plainly visible. She had had the services of several oculists who gave her glasses, without, however, using a mydriatic, but none were of any service. A strong solution of atropia is instilled morning and night for a week, when five determinations give the error as, R.—2 s.  $\bigcirc$ —3 c. ax.  $180^\circ$ ; L.—6s.  $\bigcirc$ —3 c. ax.  $180^\circ$ . She is kept under the influence of the atropia twenty days longer, when she is able to fuse images at 20 feet with a prism of  $3^\circ$  base in before the left eye, a feat which no prism enabled her to perform when I first saw her. The atropia is now discontinued, and two weeks later, with the lenses combined with prisms of  $2^\circ$  bases in  $V = \frac{20}{20}$  some letters, each eye; De Wecker No. 1, and no insufficiency can be made out June, 1888. Wears glasses constantly and is very comfortable.

#### ADDENDUM—JUNE, 1888.

CASE I.—Proving that normal vision can be had through full correction with plus glasses and that the addition of low plus glasses to this correction blurs vision; in other words that the normal *tone* of ciliary muscle has no existence in fact.

June 20, 1887. P. B. æt. 13. Symptoms of accommodative muscular asthenopia. V. R. and L. =  $\frac{20}{20}$  poorly. Hm. = 0.50 s. D. Under atropia R. V. =  $\frac{20}{20}$ , +0.50 s.  $\bigcirc$  +0.50 c. ax.  $165^\circ$  =  $\frac{20}{20}$ . L. V. =  $\frac{20}{20}$ , +0.50 s.  $\bigcirc$  +0.50 c. ax.  $15^\circ$  =  $\frac{20}{20}$ . March 3, 1888. Without a mydriatic and with the above correction, V. R. and L. =  $\frac{20}{20}$  well. When a +0.25 s is put before the glass on either eye V. =  $\frac{20}{30}$ , and +0.50 s reduces it to  $\frac{20}{40}$ .

CASE II.—Corroborates case I. June 27, 1887. Miss M. C., æt. about 20. Has worn plus glasses for some years, but does not think they suit her exactly. R. and L. V. =  $\frac{20}{20}$ . Hm. = 0.50 s. D. and raises V. to  $\frac{20}{20}$ , a few letters. Under atropia,

R. V. =<sup>20</sup>/<sub>100</sub> + 3 s.  $\bigcirc$  + 0.50 c. ax. 60°, V. =<sup>20</sup>/<sub>20</sub>, some letters.  
L. V. =<sup>20</sup>/<sub>100</sub> + 3.50 s. =<sup>20</sup>/<sub>20</sub> some letters.

After some weeks, the effects of the atropia having entirely passed away with the above correction R. and L. =<sup>20</sup>/<sub>15</sub>.

June 2, 1888. She wears her glasses almost constantly and finds them a great comfort.

CASE III.—Corroborates cases I. and II. Sept. 19, 1887. G. W. B., æt. 23. Symptoms of accommodative asthenopia. Hm. = 0.50 s. D. R. V. with atropia =<sup>20</sup>/<sub>40</sub>; with + 0.50 s  $\bigcirc$  + 0.50 c ax. 90° =<sup>20</sup>/<sub>15</sub>. L. injured in early youth.

Oct. 6, 1888. All effects of the mydriatic entirely gone. R. V. with above full correction =<sup>20</sup>/<sub>20</sub>.

CASE IV.—A very careful examination before the use of the mydriatic determines accurately the formula for the R. E., but allows an error of 1 D. in that for the L. E. which would never have been detected but for the subsequent use of atropia.

Jany. 26, 1888. F. K., æt. 18. Had an inflammation of the eyes, ascribed to cold, at 5 years of age, and ever since his sight has been poor, but he thinks he sees better now than 5 years ago. Father and mother both myopic. Small light nubeculæ on each cornea.

V. R. =<sup>20</sup>/<sub>200</sub>; - 5 s  $\bigcirc$  - 2 c ax. 135° =<sup>20</sup>/<sub>50</sub>.

V. L. =<sup>4</sup>/<sub>200</sub>; - 5 s  $\bigcirc$  - 3 c ax. 180° =<sup>20</sup>/<sub>70</sub>.

Jany. 28. After 3 instillations of the strong solution of atropia on 3 successive days.

R. V. =<sup>20</sup>/<sub>200</sub>; - 5 s  $\bigcirc$  - 2 c ax. 135° =<sup>20</sup>/<sub>50</sub>.

L. V. =<sup>4</sup>/<sub>200</sub>; - 4 s  $\bigcirc$  - 3 c ax. 180° =<sup>20</sup>/<sub>70</sub>.

June 6, 1888. Have heard from him recently, and the glasses give great satisfaction.

CASE V. Corroborates case I. Jan'y 31, 1888. Miss P. æt. about 22. Accommodative asthenopia. R. and L. V. =<sup>20</sup>/<sub>20</sub> a few letters. Hm. = 0.50° c ax. 180° each eye. Feby. 9, 1888. Under atropia, R. and L. V. =<sup>20</sup>/<sub>50</sub>; + 1 s, each eye =<sup>20</sup>/<sub>20</sub>; both eyes =<sup>20</sup>/<sub>15</sub> some letters.

April 11, 1888. All traces of the mydriatic influence long since passed away; V, both eyes with glasses, =<sup>20</sup>/<sub>15</sub>.

CASE VI.—Shows the danger of overcorrection in myopia, even when great care is taken, if no mydriatic is used.

Feb. 15, 1888. Miss X. aet. about 25 years. Myopic. Was "refracted" by a most competent oculist who gave—5 s each eye, without atropia. Before the use of the drug a most careful examination on my part gave :

R. V. =  $\frac{5}{200}$ , —7 s  $\bigcirc$  —1 c ax.  $180^\circ = \frac{20}{20}$ .

L. V. =  $\frac{5}{200}$ , —7 s =  $\frac{20}{20}$ .

After the use of the mydriatic on three successive days I found

R. —6 s  $\bigcirc$  —0.50 c ax.  $180^\circ = \frac{20}{20}$  some letters.

L. —6 s  $\bigcirc$  —0.25 c ax.  $180^\circ = \frac{20}{40}$  " " "

I have heard (June, 1888) lately that these glasses give perfect satisfaction; the—5. s did not. My *confrère* fearing to overcorrect had undoubtedly cut his result down too low, and not recognizing the presence of astigmatism, or regarding it as too slight to be of consequence, had failed to correct it.

CASE VII.—Demonstrating the great difficulty of determining a low degree of M., with the ophthalmoscope and with the test glasses without the use of atropia.

Feb. 25, 1888. Miss B. W. aet. about 20. Eyes burn and get red and dim when studying. V. R. and L. =  $\frac{20}{50}$  Mm. = 1 s D. Ophthalmoscopic examination shows a normal fundus and H. 1. s D (?) Order an eight grains to the ounce solution of atropia to be instilled night and morning.

Feb. 26. Pupils fully dilated. R. and L. V. =  $\frac{20}{70}$  M. = 1 s or 1.50 s D. With the ophthalmoscope I can get a *virtual image of the fundus*, which moves in the same direction as my head, at 3 or 4 inches from her eye. I can see many details quite clearly with +1. s D., though—2 s seems to give the *clearest view*. Apply atropia and direct a continuance of its use night and morning.

Feb. 28. Pupils fully dilated. V. R. and L. =  $\frac{20}{40}$  R. —0.50 s  $\bigcirc$  —0.50 c ax.  $60^\circ = \frac{20}{20}$  a few letters. L. —0.50 s  $\bigcirc$  —0.50 c ax.  $120^\circ = \frac{20}{20}$  a few letters.

CASE VIII.—March 7, 1888. E. G. B. aet. about 36. Although his eyes have always been good and strong they are

growing a little dim of late for reading at night. He thinks he is rather nearsighted.

R. V. =  $^{20}/_{50}$ , —2 c ax.  $180^{\circ} = ^{20}/_{30}$ .

L. V. =  $^{20}/_{40}$ , —0.75 c ax.  $180^{\circ} = ^{20}/_{20}$  a few letters.

These glasses improve near vision and enable him to read DeWecker No. 1, the print looking clearer and blacker. Every plus glass even +0.25 s is peremptorily rejected. I can get a virtual image of the fundus at about 3 inches, but any plus glass blurs.

March 9. Atropia has been instilled in R. E. three times on as many consecutive days.  $V = ^{20}/_{200}, +1.50 s \bigcirc +2.50 c$  ax.  $100^{\circ} = ^{20}/_{20}$ . L. E. in which the mydriatic has *not* been used still sees best with —0.75 c ax.  $180^{\circ}$  which gives  $^{20}/_{20}$  well. Even +0.25 s is still rejected. With the ophthalmoscope I cannot see the fundus at all with more than +1. s D., or further (with no glass) than two inches from the eye, which, together with the manifest M. of 0.75 s and the absolute rejection of even +0.25 s would indicate a low myopia. In the right eye, which is under the influence of the mydriatic, I can run the plus glasses (behind the ophthalmoscope) up to 3 D., in looking at vertical blood vessels, and as I have a hypermetropia of +0.50 s  $\bigcirc +0.50 c$  ax.  $90^{\circ}$ , this shows that I am able to suspend my accommodation very fully, for the total H. in the horizontal diameter of the patient's eye is 4 D., hence the inability to use plus glasses behind the ophthalmoscope in viewing the fundus of the left eye must be due to a moderate degree of myopia or to a contraction of the circular fibres of the patient's ciliary muscle.

May 4 and 5, 1888. A strong solution of atropia is instilled in the L. E.  $V = ^{20}/_{200}$  and now +1.50 s  $\bigcirc +2. c = ^{20}/_{20}$ . A clear demonstration of the impossibility of discovering a high degree of latent H. in certain cases. Yet this man was past 35 years of age, and there was nothing especial to indicate the use of atropia. The rule which I am endeavoring to establish alone saved me from committing a grave error.

## FUGITIVE OEDEMA OF EYE-LIDS.

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BY G. E. DE SCHWEINITZ, M.D., UNIV. OF PENN.

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Ophthalmic Surgeon to the Philadelphia Hospital, to the Children's Hospital; Ophthalmologist to the Infirmary for Nervous Diseases.

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Under the above title Tom Robinson, M. D., (*British Medical Journal*, May 12, 1888—See this number, page 175) briefly records the case of a woman, æt. 46, the subject of stomach trouble and headache, who had a marked swelling of the eyelids, which kept coming and going, generally lasted two or three days, and returned when she got another headache. In his remarks Dr. Robinson says: "Such cases are not uncommon. We often find those who are the victims of periodical headaches present a condition of fugitive oedema of the eyelids. We also find many women during the menopause who have localized swellings of the hands and arms—swellings which are tender, pit on pressure, are preceded by pain, but pass away after a few hours of exercise."

Recently a very typical case of this character has occurred in the practice of the writer. The patient, an unmarried woman, was seen in consultation with Dr. Chas. K. Mills. She was engaged in active literary pursuits, and was subject to periodical headaches which usually appeared once in every ten days or two weeks. Twelve years ago she had an unusually severe attack of typhoid fever, and since that time has had a number of spells of severe catarrhal jaundice. She is at present typically a patient "with a liver." There is no uterine or renal disease. Recently after a severe head pain, lasting for three days, and located chiefly in the distribution of the right supra-orbital nerve, oedema of the right eye-lids and the right half of the forehead appeared. This was accompanied by a

throbbing sensation at the upper and inner angle of the eye. In the right eye the refraction error, measured under atropia, is  $+0.500$  axis  $105^{\circ}$ ; the left eye is emmetropic. There are no errors in the muscular balance, and the fundus of each eye is normal. Under the local use of hot stupes and the internal administration of Basham's mixture, this oedema subsided in a few days. No return of the trouble appeared for three weeks, when, after a day's pain, the swelling was again manifested. The patient was now put upon iodide of potash and salicylate of soda, and a small fly-blister placed above the eyebrow over the course of the supra-orbital nerve. The swelling and pain again subsided and no recurrence took place until ten days later when it reappeared, but this time without any preceding pain. Since then there have been several severe pain periods unaccompanied by any oedema.

*Remarks.*—The pathology of this affection is not very clear. Naturally the existence of a neuritis of the supra-orbital nerve was discussed. Many points, however, militate against the acceptance of this theory. The pain was less violent than that which accompanies neuritis. There was no association with rheumatic history in the past or with a general disorder in the present, nor was there any evidence of undue exposure. More than this there was no persistent tenderness over the course of the nerve, nor pain upon pressure over Valleix's points, the supra-orbital foramen, the palpebral points, the nasal or the inner angle of the eye. A thorough examination of the teeth by a competent dentist failed, in his opinion, to reveal any dental trouble that might have caused this affection. The fugitive, come and go character of the disorder, precluded the possibility of this being an oedema due to venous thrombosis. It is perhaps interesting in this connection to refer to that remarkable disorder, named by Quincke angio-neurotic oedema, which is characterized by the sudden appearance of oedematous swellings in various regions and of temporary duration. This disease and especially its hereditary character in certain

cases, has recently been discussed by Osler<sup>1</sup> who declined, in the present state of our knowledge to enter into a theoretical discussion on nervous oedema. Quincke regarded the disease as a vaso-motor neurosis. The present disorder does not, of course, belong to the cases which have been classed as angio-neurotic oedema, but it seems not improbable that the swelling may depend upon a disturbance of the vaso-motor influence which permits an increase in the permeability of the vessels and results in this fugitive oedema. It is finally, perhaps, not unworthy of remark that the region of oedema was around that eye, the refraction of which was a slight simple hypermetropic astigmatism. No distinct relation between this and the pain or the swelling, however, could be demonstrated.

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<sup>1</sup>Hereditary Angio-Neurotic Oedema. By W. Osler, M. D., *Amer. Jour. Med. Science*, April, 1888.

## A CASE OF OSTEO-FIBRO-LIPOMA OF THE CONJUNCTIVA.

BY J. S. PROUT, M. D. BROOKLYN, N. Y.

MICROSCOPICAL REPORT BY RICHMOND LENNOX, M.D., BROOKLYN.

Cases of this character are very rare. I find reference to only five, as follows:

Two in the Graefe-Saemisch Handbuch, IV, 1, 151, one of which was removed by A. von Graefe, the other by Saemisch; one by the late E. G. Loring, reported in the Trans. Am. Oph. Society, Vol. III, p. 437, meeting of 1882, (also reported in the *N.Y. Med. Jour.*, 1883, XXXVII, 12); one by A. Critchett in Trans. Oph. Society of the United Kingdom, Vol. II, 1882, p. 254, and one by Simeon Snell in the Transactions of the same society, Vol. IV, 1884, p. 31. To these I am able to add the following case:

Mrs. H. G., aet. 28, consulted me on March 17, 1887. She said that when she was born there was a small tumor under the outer part of the upper eyelid, which came into view when the eye was turned to the inner side. Formerly a hair grew out of it. It gradually became less conspicuous, but since her marriage, at the age of twenty, it had grown larger, being especially prominent at the time of each confinement, of which she has had four.

When the eye is closed the growth can be felt as a flat, freely movable body under the eyelid, retreating on pressure under the upper outer margin of the orbit. When the eye is open the lower edge of the growth appears under the upper lid at its outer third. On drawing up and partially evertting the lid the tumor comes almost fully into view, is freely movable, feels firm and elastic, and measures about 12  $\times$  18 mm. The conjunctiva is apparently not adherent to it, but seems slightly thickened and is a little injected. It annoyed her by its pressure on the eyeball but caused no pain. She complains of floating bodies. V=<sup>18</sup>/<sub>xxv</sub>—each eye. The ophthal-

moscope showed no floating bodies nor anything wrong in either eye.

No positive diagnosis was made. From the fact that a hair had formerly grown from it I thought it might possibly be a cystic tumor.

On April 11, assisted by Dr. C. E. Gunther, I instilled 2% solution cocaine muriate and dissected out the growth, which extended well up and out under the upper lid. It was of the consistency of and felt like a fatty tumor, about  $12 \times 16 \times 3$  mm., with a hard centre which was apparently bone or cartilage. The eye was closed by a bandage and the wound left to itself. Healing was prompt. A week later when she looked to the right side there was diplopia. At the end of twelve months this had disappeared, there was free motion in all directions, but she still complained of seeing floating bodies.

Dr. Richmond Lennox very kindly examined the tumor for me. His report is as follows:

The specimen which was hardened in Müller's fluid and alcohol, was found to measure  $18 \times 12 \times 4$  mm. On section it was seen to consist chiefly of fat in which were numerous bands of fibrillar connective tissue. One of its surfaces was quite smooth and covered in part by epithelium lying upon a fibrous substratum fairly rich in cells and blood-vessels. The epithelium presented nothing unusual save that it was, perhaps, somewhat thinner than is ordinarily the case. Near the center of the tumor there was a hard mass of darker color than the rest, of about the size and shape of a very small bean, ( $2 \times 3 \times 4$  mm.) which could be satisfactorily cut only after it had been softened for several weeks in dilute chromic acid. It was then found to consist of fully formed bone with an irregularly arranged system of Haversian canals and lacunæ. The osseous tissue was sharply defined, and surrounded by a fibrous capsule, from which it could be shelled out without difficulty. Outside of this capsule the fibrous tissue gradually gave place to the fatty tissue which made up the body of the growth.

RICHMOND LENNOX.

## FUGITIVE CEDEMA OF THE EYELIDS.

From the British Medical Journal.

A sister of mercy consulted me on March 1st of this year. Her history was that she had not menstruated for four months. (She was 46 years old.) She had been subject all her life to stomach and head troubles, and she had had many attacks of erysipelas of the face and head; the last attack of erysipelas was six years ago. She had always had a puffiness of the face, often the headache. Her friends often used to say: "Havn't you a touch of erysipelas? Your face is so swollen." Her present condition began in December, 1887. The swelling of the eyelids was much worse in the morning, and was sometimes so marked that she could not see out of them until she had bathed them and been about for a time. There was a discharge from the eyes at times, which glued the lids together. The swelling kept coming and going; it generally lasted two or three days, and returned when she got another headache.

She was a big-faced woman, with a large, loose frame. Her face and brow were covered by drops of sweat. There was quite a cushion of oedematous tissue overhanging each upper eyelid. There was nothing which would indicate eczema. She was free from any organic disease of the heart or kidneys. The legs were not swollen.

**REMARKS.**—Such cases as the one given above are not uncommon. We often find those who are the victims of periodical headaches present a condition of fugitive oedema of the eyelids. In one instance the swelling was limited to one orbit, and looked as if the man had been stung by a wasp. We also find many women during the menopause who have localized swellings of the hands and arms—swellings which are tender, pit on pressure, are preceded by pain, but pass away after a few hours of exercise.

TOM ROBINSON, M. D.

## OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

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THURSDAY, MAY 3, 1888.

J. W. HULKE, F.R.S., PRESIDENT IN THE CHAIR.

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From the British Medical Journal.

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*Melanotic Sarcoma.*—Mr. C. Higgens gave an account of a case of this affection. The chief point of interest was that the appearance of the growth simulated to such an extent an opaque and displaced lens as to be taken for one by more than one of those who examined it. The eyeball was eventually excised, and found to contain a mass of melanotic sarcoma. The patient died with a greatly enlarged liver seven months after the removal of the eyeball.

*A Point in Connection with Artificial Eyes.*—Mr. McHardy pointed out that a sinister appearance almost invariably associated with the wearing of an artificial eye was very largely, if not indeed entirely, obviated when such a patient wore spectacles or eyeglasses glazed with odd lenses, so that the lens in front of the artificial eye had something like 3 D. greater refracting power than that before the natural eye. The extra lens power before the artificial eye produced an optical delusion regarding the level and size of the latter; and the excess of lens power, which usually was about 3 D., could be varied according to the distance at which the lens was placed in front of the artificial eye.—Mr. Tweedy thought there was nothing new in the suggestion; he had adopted the practice for many years, and believed he owed the idea to Mr. Lawson.

*Primary Tuberculosis of the Choroid.*—Mr. McHardy read the notes of a case of local tubercular choroiditis occurring in a child aged 6 years, with negative family history. He closely

watched the intra-ocular condition during four weeks, and then enucleated. The constitutional symptoms which had preceded enucleation immediately subsided after removal of the eye, and had not returned in the five months that had since elapsed. The specimen showed that complete detachment of the retina had occurred at the time of enucleation; that the main intra-ocular tumor was in the choroid, and that the two smaller masses in the retina were all definitely tubercular so far as the microscopical appearances without the presence of bacilli would reveal. He regretted that inoculation had not been practised, urged the importance of early enucleation in analogous cases, and remarked that the literature of the subject pointed to the infrequency of local intra-ocular tuberculosis, to the not invariable, but very usual, failure to find the Koch bacillus therein, and that successful tubercular inoculation from such masses had been affected even when the Koch bacillus had eluded detection.—The President did not remember to have seen a single instance of primary tubercle of the choroid.—Dr. Hill Griffith asked how it was proved that the growth was not a sarcoma? He had enucleated an eyeball for sarcoma, and found a detachment of the retina which was not present immediately before the enucleation. The improvement in the constitutional state might have been the result of the relief from pain.—Dr. Sharkey thought that the diagnosis of primary tuberculosis of the choroid could not be sustained in this case without further history. It was a well recognized fact that tubercular peritonitis was frequently cured, as attested both by clinical and pathological evidence, the latter being extremely strong. It was much more likely that this was a case of tuberculosis of the peritoneum and subsequently of the choroid.—Mr. Carless described the methods of staining adopted in the search for bacilli, and alluded to some points in the clinical history of the abdominal ailment.—Mr. McHardy in reply, pointed out that the appearances did not at all agree with those seen in sarcoma. There was no pain about the eye, but the tumor grew very rapidly, and hence probably the relief of the symptoms after the enucleation.

He quite agreed that there was a doubt as to the nature of the original abdominal affection.

*Functional Eye Symptoms in Hysteria and Allied Conditions.*

Dr. H. Griffith read an abstract of a paper on this subject. He classified the cases into the following groups: 1. Hysterical blindness, mostly monocular; 2. Amblyopia of one eye, with achromatopsia and hemianæsthesia (Charcot); 3. Same group with absence of hemianæsthesia; 4. Blepharospasm as sole eye symptom. This symptom was common in all the groups; 5. Hysterical conjugate deviation of eyes; 6. Neurasthenic asthenopia, symptoms bilateral. He was in favor of the theory of changes in the centres of vision rather than in the retina, as the cause of contraction of the field of vision.—Mr. Jessop asked if he had met with the concentric spiral cases described by Mr. Priestley Smith, in which it had been shown that a neutral tinted glass enlarged the field. He asked if any change had been noted in the ordinary fields, that is, in relation of green to white, etc.—Mr. Ernest Clarke objected to all the cases being grouped under one heading, some being evidently due to fraud, others to true hysteria, and others possibly were central.—Dr. Griffith agreed that the fields of vision were always affected. He thought it was difficult to draw the line between fraud and self-deception.

*On the Removal of Staphyloma of the Cornea.*—Mr. Tatham Thompson read a paper recommending that a curved needle threaded with horse hair should be passed through that portion of the staphyloma which it was intended to remove; it afforded a ready means of steadyng the eye whilst the elliptical incisions were being made, and of removing the portion after they were completed. The edges of the wound usually adapted themselves readily; the parts were then well flushed with a weak solution of perchloride of mercury, and tolerably firm pressure applied to keep them in apposition. The results obtained were very satisfactory.

INTERNATIONAL CONGRESS OF OPHTHALMOLOGISTS.

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MEETING AT HEIDELBERG, AUGUST 6 TO 12, 1888.

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The following papers have been promised:

1. *Knies*: Objective demonstration of color perceptions.
2. *Cohn*: On photographing the fundus oculi.
3. *Cohn*: On myopia.
4. *Manz*: On a teratological subject.
5. *DeWecker*: A new method of treating corneal staphyloma.
6. *Landolt*: On the causes and treatment of strabismus.
7. *Bessel—Hagen*: A case of exostosis eburnea in the orbit.
8. *Kipp*: On keratitis dendritica exulcerans and its relation to malarial poisoning.
9. *Mules*: On lymph-nævi of the eye and its appendages.
10. *Grandclément*: On the good effects of pilocarpine in those badly defined cases, comprised under the name of asthenopia of the retina.
11. *Bernheimer*: On the chiasma nervorum opticorum in man.
12. *Birndale*: The statistics of the refraction of the eye.
13. *Pagenstecher*: On the extraction of cataracts within the lens capsule.
14. *Stilling*: The relation between the shape of the skull and the refraction of the eyes.
15. *Nieden*: Colloid excrescences within the optic nerve.
16. *Knapp*: Designation of the meridian in prescribing cylindrical lenses.
17. *Knapp*: Extraction of cataract without iridectomy.
18. *Singer*: Demonstrations concerning the decussation

of the fibres of the optic nerves in the chiasma.

19. *Grossman*: New method of testing the color-perception.

20. *Zehender*: Two words concerning spectacles.

21. *Hess*: Further communications on the artificial production of dimness of the lens without injury to the lens capsule.

22. *Chibret*: Bacteriological studies made in order to determine an exact antiseptic method in ophthalmic practice.

Further titles of papers are asked for, and may be sent to the committee up to July 31.

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#### ENGRAVING OF THE LATE DR. CORNELIUS R. AGNEW.

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At the last meeting of the Ophthalmological and Otological Section of the New York Academy of Medicine, the following motion was made and carried:

"That a committee be appointed, of which the chairman of the section, Dr. David Webster, be a member, whose duty it shall be to obtain a good photograph of the late Dr. Cornelius R. Agnew, for the purpose of having engravings suitable for framing made from this. The right of issue and sale of such engravings shall be given to some first class publisher, if practicable; if not, the committee shall offer them to the profession at cost."

In accordance with the above, a committee has been appointed. Members of the profession who desire such an engraving accompanied by an autograph signature, should send their names and addresses to the secretary of the committee, Dr. Charles H. May, 640 Madison Avenue, New York City, at once. When all such names shall have been recorded, those who have requested a copy of the engraving will be notified of the cost of the same, either by the publisher, or by the committee having the matter in charge.